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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,225	03/09/2004	Takahisa Mizuta	51732/P849	2704

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CHRISTIE, PARKER & HALE, LLP  
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EXAMINER

DHARIA, PRABODH M

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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11/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/796,225

Applicant(s)

MIZUTA, TAKAHISA

Examiner

Prabodh M. Dharja

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19, 21-32 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19, 21-27, 32 and 34 is/are allowed.
- 6) ☒ Claim(s) 28-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. **Status:** Please all replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 10-05-2007 under amendments and request for reconsideration, which have been placed of record in the file. Claims 1-19, 21-32 and 34 are pending in this action. Claims 20 and 33 are cancelled.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashino et al. (US 7,030,839 B2) as in view of Matsumoto; Sadayuki et al.(US 5,854,540 A).

Regarding Claim 28, Higashino et al. teaches a plasma display panel driving method by forming wall charges at a discharge cell to be selected from among a plurality of discharge cells, and discharging the selected discharge cell, comprising: applying a setup pulse for forming a first space charge at a selected discharge cell to the discharge cell; and establishing the first space charge formed by the setup pulse as a priming element, and applying a sustain pulse with a voltage level of a range for discharging the selected discharge cell to the discharge cell (Page 3, Paragraphs 33-36).

However, Higashino fails to specifically disclose establishing the first space charge formed by the setup pulse as a priming element, and applying a sustain pulse to the discharge cell, wherein the sustain pulse has a voltage level of, a range for discharging the selected discharge cell when the priming element exists in the selected discharge.

However, Matsumoto; Sadayuki et al. discloses plasma display panel driving method (please see abstract, Col. 1, lines 8-13) by forming wall charges at a discharge cell (Col. 2, Line 63 to Col. 3, Line 6) be selected from among a plurality of discharge cells and discharging the selected discharge cell (Col. 3, Line 51 to Col. 4, Line 11), comprising: applying a setup pulse for forming a first space charge at a selected discharge cell to the discharge cell (Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6); and establishing the first space charge formed by the setup pulse as a priming element (Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6) and applying a sustain pulse to the discharge cell (Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6), wherein the sustain pulse has a voltage level of a range for discharging the selected discharge cell (Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6) when the priming element exists in the selected discharge cell (Col. 3, Lines 21-23, Col. 10, Lines 13-41).

The reason to combine is the claimed method of driving plasma display pane (PDP) Matsumoto; Sadayuki et al. discloses as a well known method of driving specifically wherein the sustain pulse has a voltage level of a range for discharging the selected discharge cell when the priming element exists in the selected discharge cell (Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6) in related description of the art by few Japanese prior art; and it also discloses the disadvantage of the method the addressing operation can be performed constantly

in the same cell state and however, luminance in the area displayed in black increases, lowering the contrast of picture or image as generated, to a disadvantage; however, in fifth embodiment of the disclosure Matsumoto; Sadayuki et al. discloses the sustain pulse has a voltage level of a range for discharging the selected discharge cell when the priming element exists in the selected discharge cell (Col. 10, Lines 13-41) and each field may be constituted by a plurality of subfields which differ from one another in respect to the sustained discharge period, wherein the subfield having the longest sustained discharge period is employed as the first subfield containing the priming pulse and the addressing operation can be carried out without fail, the reliability of the addressing operation can further be enhanced; one field may repetitively and successively be executed, wherein the subfield constituting each field and having the longest sustained discharge period and the subfield having the second longest sustained discharge period may be disposed such that a temporal interval intervening between these subfields becomes maximum; with the whole panel write operation is performed at a frequency which ensures addressing operation with high reliability, whereby picture or image of improved quality can be obtained while suppressing black display luminance. Ultimately Matsumoto; Sadayuki et al. suggest with advantage or disadvantage the claimed invention is well known to one ordinary skill in the art.

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Matsumoto; Sadayuki et al. in the teaching of Higashino et al. to be able to have a PDP or plasma display panel where sustained discharge period is employed as the first subfield containing the priming pulse and operating panel write operation is performed at a frequency which ensures addressing operation with high reliability, whereby picture or image of improved quality can be obtained while suppressing black display

luminance.

Regarding Claim 29, Higashino et al. teaches the sustain pulse has a width of a range for forming a second space charge after the selected discharge cell is discharged by the sustain pulse, and the second space charge formed by the sustain pulse is set as a priming element, a level of the sustain pulse is converted, and the level-converted sustain pulse is applied to the discharge cell within a range where the second space charges remain so that the selected discharge cell may be discharged (page 1, paragraph 2, Col. 3, paragraphs 33-36).

Matsumoto; Sadayuki et al.(US 5,854,540 A) discloses the sustain pulse has width of a range for forming a second space charge after the selected discharge cell is discharged by the sustain pulse, and the second space charge formed by the sustain pulse is set as a priming element, a level of the sustain pulse is converted, and the level-converted sustain pulse is applied to the discharge cell within a range where the second space charges remain so that the selected discharge cell may be discharged (Col. 3, Lines 21-23, Col. 10, Lines 13-41, Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6).

4. Claims 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Homma (US 2003/0141824 A1) in view of Matsumoto; Sadayuki et al.(US 5,854,540 A).

Regarding Claim 30, Homma teaches a plasma display panel driving (page 7, paragraph 107, Lines 1,2) method by dividing a frame for realizing video signals into a plurality of subfields (page 7, paragraph 107, Lines 1-7), the plasma display panel including a plurality of

discharge cells (page 7, paragraph 100, Lines 1-9), wherein a subfield includes an address period for forming wall charges at a discharge cell to be selected from among the discharge cells (page 10, paragraph 155), and a sustain period for sustaining the selected discharge cell (page 10, paragraph 167) without using a memory function the sustain period being subsequent to the address period, (page 1, paragraph 5, Lines 10-13 please see figure 9, where sustain period  $T_S$  follows or subsequent to  $T_A$  address period ), the method comprising: in the sustain period: applying a pulse for discharging the selected discharge cell during the address period; and establishing the discharge as priming, and applying a sustain pulse for alternately sustaining the discharge cell (page 10, paragraphs 164-168).

However, Homma fails to disclose in the sustain period: applying a pulse for discharging the selected discharge cell to the discharge cells to generate priming; and applying a sustain pulse to the discharge cell to sustain the selected discharge cell by using the priming.

However, Matsumoto; Sadayuki et al. discloses a plasma display panel driving method by dividing a frame for realizing video signals into a plurality of subfields (please see abstract, Col. 3, Lines 21-23, Col. 10, Lines 13-41, Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6), the plasma display panel including a plurality of discharge cells, wherein a subfield includes an address period for forming wall charges at a discharge cell to be selected from among the discharge cells (please see abstract, Col. 3, Lines 21-23, Col. 10, Lines 13-41, Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6), and a sustain period for sustaining the selected discharge cell without using a memory function (please see abstract, Col. 10, Lines 13-41, this embodiment the Prime pulse is embedded in the sustain pulse and does not required memory function to store the prime pulse effect in the wall charges as prior art discloses as well

known in the Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6, Col. 3, Lines 21-23) the sustain period being subsequent to the address period, the method comprising: in the sustain period: applying a pulse for discharging the selected discharge cell to the discharge cells to generate priming; and applying a sustain pulse to the discharge cell to sustain the selected discharge cell by using the priming (please see abstract, Col. 10, Lines 13-41, please see figures 13-16).

The reason to combine is the claimed method of driving plasma display pane (PDP) Matsumoto; Sadayuki et al. discloses as a well known method of driving specifically wherein the sustain pulse has a voltage level of a range for discharging the selected discharge cell when the priming element exists in the selected discharge cell (Col. 3, Line 51 to Col. 4, Line 21, Col. 2, Line 63 to Col. 3, Line 6) in related description of the art by few Japanese prior art; and it also discloses the disadvantage of the method the addressing operation can be performed constantly in the same cell state and however, luminance in the area displayed in black increases, lowering the contrast of picture or image as generated, to a disadvantage; however, in fifth embodiment of the disclosure Matsumoto; Sadayuki et al. discloses the sustain pulse has a voltage level of a range for discharging the selected discharge cell when the priming element exists in the selected discharge cell (Col. 10, Lines 13-41) and each field may be constituted by a plurality of subfields which differ from one another in respect to the sustained discharge period, wherein the subfield having the longest sustained discharge period is employed as the first subfield containing the priming pulse and the addressing operation can be carried out without fail, the reliability of the addressing operation can further be enhanced; one field may repetitively and successively be executed, wherein the subfield constituting each field and having the longest sustained discharge



period and the subfield having the second longest sustained discharge period may be disposed such that a temporal interval intervening between these subfields becomes maximum; with the whole panel write operation is performed at a frequency which ensures addressing operation with high reliability, whereby picture or image of improved quality can be obtained while suppressing black display luminance. Ultimately Matsumoto; Sadayuki et al. suggest with advantage or disadvantage the claimed invention is well known to one ordinary skill in the art.

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Matsumoto; Sadayuki et al. in the teaching of Higashino et al. to be able to have a PDP or plasma display panel where sustained discharge period is employed as the first subfield containing the priming pulse and operating panel write operation is performed at a frequency which ensures addressing operation with high reliability, whereby picture or image of improved quality can be obtained while suppressing black display luminance.

Regarding Claim 31, Matsumoto; Sadayuki et al. discloses address period of a next subfield follows the sustain period of a subfield (please see abstract, Col. 10, Lines 13-41 please see figures 13-16).

#### ***Response to Arguments***

5. Applicant's arguments, see remark/arguments, filed 10-05-2007, with respect to the amended claim 28 under 35 U.S.C. 103(a) as being unpatentable over Higashino et al. (US 7,030,839 B2) as in view of Okada Taku ((US 2002/0033677 A1) and rejection of claim 30

under 35 U.S.C. 103(a) as being unpatentable over Homma (US 2003/0141824 A1) in view of Tokunaga Tsutomu et al. (US 6,900,782 B2) have been fully considered and are persuasive.

However, upon further consideration, a new ground(s) of rejection is made in view of Matsumoto; Sadayuki et al.(US 5,854,540 A).

6. Applicant's arguments, see remark/arguments, filed 10-05-2007, with respect to amended claims 32 and 34 have been fully considered and are persuasive. The office action of non-final rejection mailed on 07-10-2007 of claims 32 and 34 has been withdrawn.

*Allowable Subject Matter*

7. Claims 1-19, 21-27 are allowed.

8. The following is an examiner's statement of reasons for allowance:

9. As argued by applicant in remarks under claim rejection regarding claims 1-19 and 21-27, pages 11,12 and page 13, last two paragraphs and page 14 the prior art of Higashino et al. (US 7,030,839 B2), Okada Taku ((US 2002/0033677 A1), Homma (US 2003/0141824 A1), Tokunaga Tsutomu et al. (US 6,900,782 B2), Seguin, Alexis (US 2004/0027317 A1); Matsumoto; Sadayuki et al.(US 5,854,540 A) fails to recite or disclose the uniquely distinct features of the independent claims limitations below with all the other limitations recited in independent claims:

**a single subfield includes an address period for forming wall charges at a discharge cell to be selected from among the discharge cells, and a sustain period for discharging the**

**selected cell, the method comprising: in the sustain period: applying a first pulse to a second electrode of the plurality of second electrodes while a first electrode of the plurality of first electrodes is established at a first voltage; and alternately applying to the first electrodes and the second electrodes a sustain pulse with a second voltage defined by a voltage difference between the first electrodes and the second electrodes, wherein the second voltage is less than a voltage difference between the first pulse and the first voltage.**

Claims 32 and 34 allowed.

The following is an examiner's statement of reasons for allowance:

As argued by applicant in remarks under claim rejection regarding claims 32 and 34; pages 11,12 and page 13, last two paragraphs and page 14 the prior art of Makino (US 2002/0067127 A1).fails to recite or disclose the uniquely distinct features of the independent claims limitations below with all the other limitations recited in independent claims:

**wherein to maximize an efficacy of the plasma display panel a frequency of the sustain pulse supplied for sustaining the discharge cell in the driving circuit is greater than 500KHz and less than or equal to 1MHz due to electromagnetic interference.**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schermerhorn; Jerry D.(US 3,840,779 A) CIRCUITS FOR DRIVING AND ADDRESSING GAS DISCHARGE PANELS BY INVERSION TECHNIQUES.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

12. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

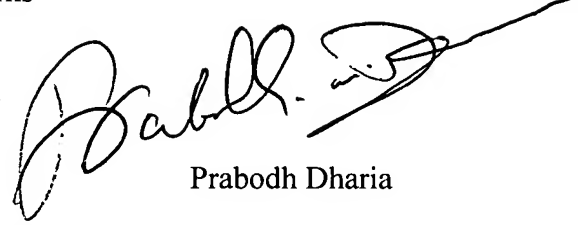
Application/Control Number:  
10/796,225  
Art Unit: 2629

Page 12

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

A handwritten signature in black ink, appearing to read "Prabodh Dharia", with a long horizontal flourish extending to the right.

Prabodh Dharia

Full Signatory Authority Program

AU 2629

November 18, 2007